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COMBINED CONVERSION OF POTATOES TO STARCH AND ALCOHOL

(Kompleksnaya pererabotka kartofelya na krakhmal i spirt)

V. M. Zelenskiy

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COMBINED CONVERSION OF POTATOES TO STARCH AND ALCOHOL

by

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The most efficient means of complete utilization of starch is the combined conversion of potatoes to starch and alcohol.

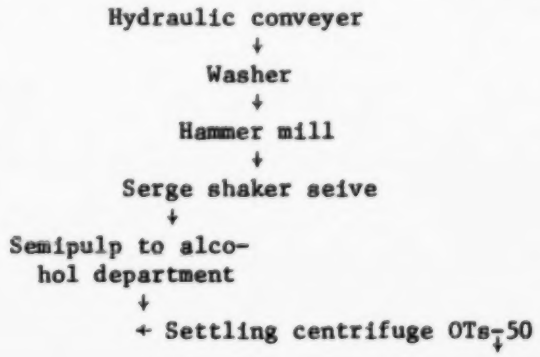
The organization of starch departments in alcohol plants and the combined conversion of potatoes to starch and alcohol raise the starch utilization factor to 96%.

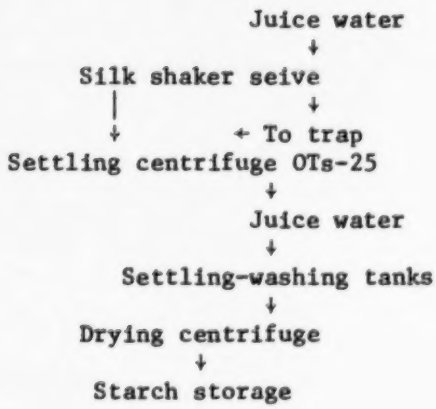
Combined processing of potatoes significantly reduces the cost price of alcohol and starch and eliminates the harmful effect of cell juice in the production of starch to be used in the alcohol plant as a nutrient medium for yeast.

In 1960 the Berezina alcohol plant in the Minsk Oblast was converted to combined production of starch and alcohol from potatoes. In the fourth quarter of 1960 the plant produced about 300 tons of top-quality joint starch with a 38% moisture content.

Actual cost of construction of the starch department, taking into account a three-wall extension, aquisition and assembly of equipment was 32 thousand rubles. These expenses are recouped in the course of one production season by excess profits from the reduced cost price per ton of starch produced in the starch department of the alcohol plant.

The production cycle in the starch department follows the following plan:





The potatoes reach the washer by hydraulic conveyer and then, passing through an automatic scales and feeder reach the hammer mill. Potato pulp is sent to the shaker seive from which the semipulp goes to the alcohol department and the "milk" to an Ots-50 settling centrifuge. Compressed to 8° the milk is fed to a silk shaker seive and the juice water flows to the trap. Starch milk refined in the silk seive is fed to the settling centrifuge, after which with a density of 22° it is sent to settling-washing tanks. The milk treated in washing tanks reaches the drying centrifuge and then storage.

The starch extraction coefficient is 50-51.

Semipulp leaving the serge shaker seive is transported by a displacement pump to the alcohol plant still. Semipulp is distilled according to the plan perfected by the Chemersk plant. The starch content of the semipulp is 6.7-7.0%.

To compensate the joint starch obtained from the potatoes and increase the concentration of the pulp to 15° grain flour is added to the semipulp. The grain is ground in a rolling machine. In the absence of grain, supersugar syrup is added to the fermenting vats at a certain stage of fermentation.

Technological indices of the mature spirits in working with semipulp alone and mixed with other raw materials are within normal limits.

The experience of the Berezina alcohol plant gives basis for recommending introduction of this plan in other plants.

In 1961 starch plants will be put into operation in the Man'kovich, Linov and Verkhovich alcohol plants.

In the new season 5 more plants of the Economic Council of the Belorussian SSSR will be converted to combined potato processing, at least 30% by the end of the seven-year period.